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E1D DCF2 DLELB D185 D193 D2023 D2053 D2121
D2140 D401 D421 D427
U1S S1708

(56) Documents cited

GB 2146270 A GB 1543472 A GB 1519045 A
GB 1511252 A GB 1473579 A GB 1228592 A
GB 0731914 A

(58) Field of search

UK CL (Edition K) B2E EM, B5N
INT CL⁵ B32B, D06N

(54) Cladding material for roof construction

(57) Comprises a woven layer having a continuous backing sheet applied to one side, the opposite layer having a layer of waterproof paint. A pitched roof 1 is weatherproofed by securing timber battens 4 to the roof, securing timber strainers 2, 3 to opposite edges of the roof, and tensioning a sheet 5 over the battens between the strainers 2, 3. The sheet 5 includes a layer of interwoven polypropylene fibres and a non-porous backing layer. A protective outer layer of chlorinated rubber paint is applied to the sheet 5, and expanded polystyrene granules 8 are blown into the void formed between the sheet 5 and the underlying surface of the roof 1.

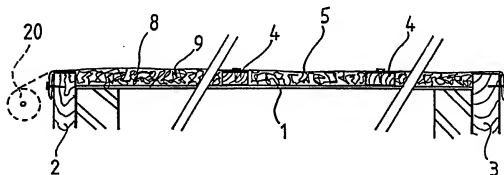


FIG 1

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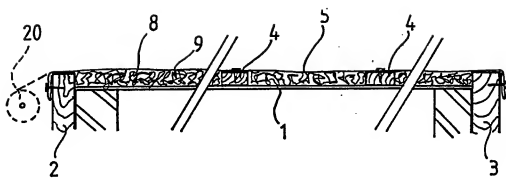


FIG 1

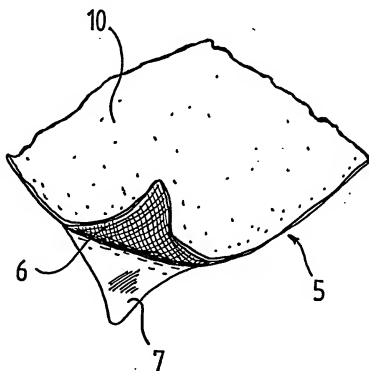


FIG 2

CLADDING MATERIAL

TECHNICAL FIELD OF THE INVENTION

This invention relates to a weatherproof cladding material which is suitable for a variety of exterior uses.

BACKGROUND

By way of example, existing pitched rooves often require treatment for waterproofing and/or insulating purposes, but current methods of treatment are either expensive or do not last very long, or both.

An aim of the present invention may be viewed as being to provide a form of cladding material which is both inexpensive and durable.

SUMMARY OF THE INVENTION

The present invention proposes a cladding material comprising a woven layer having a continuous backing sheet applied to one side, and the opposite side of the woven layer being provided with a layer of weatherproofing paint.

The continuous backing sheet renders the material completely waterproof whereas the woven layer adds

strength to the skin and provides a key for the outer paint layer.

The woven layer preferably comprises interwoven strands of fibrous plastics material, preferably polypropylene. In order to provide an improved key for the weatherproofing paint at least a proportion of the strands are preferably bunched, that is to say, the fibres are gathered together in bundles rather than being arranged in a flat strip.

The layer of weatherproofing paint is preferably of a waterproofing material which also provides the woven layer with protection against ultra-violet light. The range of materials known as chlorinated rubber paints are ideal.

The cladding material is suitable for a wide range of uses. For example, the material could be applied directly to the exterior surface of an existing industrial, commercial or agricultural pitched roof of asbestos, steel, aluminium or ondulene for example, thereby providing a waterproof and weatherproof cover. Usually the material will be spaced from the roof surface by suitable spacers such as timber battens. The cladding material is preferably tensioned between stressing members secured to opposed edges of the roof. The cladding material is extremely strong and will not sag even upon exposure to high temperatures. The void which is thus created between the cladding and the roof will provide a measure of heat insulation, but the void is preferably filled with a solid heat insulation material to improve the U value. Although glass fibre matting may be used for this purpose the preferred

material comprises expanded polystyrene granules since this does not retain any water which may find its way into the void.

The invention also provides a process for the treatment of pitched rooves which comprises applying to the external surface of the roof a woven layer having a continuous backing layer applied to its rear surface, and applying a layer of weatherproofing paint to the opposite exterior surface of the woven layer, thereby forming a waterproof cladding.

The method preferably includes securing stressing members to opposed edges of the roof, securing spaced support members to the external surface of the roof, and securing the cladding to the stressing members such that a void is formed between the cladding and the roof.

Granular insulation material may be introduced into the void. The granules are preferably carried into the void by a stream of air.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is exemplified in the accompanying drawings, in which:

Figure 1 is a section through a roof which has been waterproofed using a skin formed of the cladding material of the invention, and

Figure 2 is a perspective view of part of the

skin which has been applied to the roof.

DETAILED DESCRIPTION OF THE DRAWINGS

By way of example, in order to waterproof and insulate a pitched roof 1 (Fig. 1) timber strainers 2, 3 are secured to opposite edges of the roof in place of the existing barge boards. A series of timber battens 4 are also secured to the upper surface of the roof 1, typically at 1m spacing, by means of bolts, rivets or other suitable means depending upon the nature of the roof 1. The battens run substantially parallel to the strainers 2, 3. A waterproof skin 5 is then stapled to one of the strainers 3, and tensioned across the battens 4 by attaching the opposite end to a straining roller 20. The skin is then stapled to the opposite strainer 2 and the battens 4, the use of galvanised staples being preferred.

As shown in Fig. 2, the skin 5 includes a woven layer 6 to which a continuous non-porous polypropylene backing sheet 7 is bonded. The layer 6 is formed by two interwoven sets of mutually perpendicular bunches of polypropylene fibres. Such material is available relatively inexpensively and is normally used to manufacture bags.

Referring back to Fig. 1, granular expanded polystyrene 8 is then blown into the void 9 which is created between the skin 5 and the roof 1 to substantially fill the void. Finally, the upper surface of the skin 5 is painted with a chlorinated rubber paint 10 (Fig. 2) to provide ultra-violet protection for the polypropylene

layers 6 and 7 and seal the areas where the staples are inserted. Two coats will normally be sufficient. The skin will usually be strong enough to support the weight of workmen to apply the paint, without suffering damage.

It will be noted that all of the work can be carried out from the exterior of the building without disrupting production or any other activities normally carried out within the building. The treated roof is completely waterproof, has good thermal insulation, and, provided a fresh coat of the protective paint is applied periodically, can last indefinitely.

It will be appreciated that the skin material 5 can be used in a wide variety of exterior cladding applications where a waterproof and durable skin is required to be exposed to the atmosphere. The roofing process described above, although original per se, is but one of many possible uses of the material.

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CLAIMS

1. Cladding material comprising a woven layer having a continuous backing sheet applied to one side, and the opposite side of the woven layer being provided with a layer of weatherproofing paint.
2. Cladding material according to Claim 1, in which the woven layer comprises interwoven strands of fibrous plastics material.
3. Cladding material according to Claim 2, in which the plastics material is polypropylene.
4. Cladding material according to Claim 2 or 3, in which at least a proportion of the strands are bunched.
5. Cladding material according to any preceding claim, in which the layer of weatherproofing paint is of a material which provides protection against ultra-violet light.
6. Cladding material according to Claim 5, in which the weatherproofing paint is a chlorinated rubber paint.
7. A roof structure in which the exterior surface is provided by a layer of cladding material according to any preceding claim, with the layer of weatherproofing paint outermost.

8. A roof structure according to Claim 7, in which the cladding material is spaced from the underlying roof surface by spacers.

9. A roof structure according to Claim 8, in which the spacers comprise timber battens.

10. A roof structure according to Claim 8 or 9, in which the cladding material is tensioned between stressing members secured to opposed edges of the roof.

11. A roof structure according to Claim 8, 9 or 10, in which the void between the cladding material and the underlying roof surface contains a solid heat insulation material.

12. A roof structure according to Claim 11, in which the heat insulation material comprises expanded polystyrene granules.

13. A process for the treatment of rooves which comprises applying to the external surface of the roof a woven layer having a continuous backing layer applied to its rear surface, and applying a layer of weatherproofing paint to the opposite exterior surface of the woven layer, thereby forming a waterproof cladding.

14. A process according to Claim 13, which includes securing stressing members to opposed edges of the roof, securing spaced support members to the external surface of the roof, and securing the cladding to the stressing members such that a void is formed between the cladding and the roof.

15. A process according to Claim 14, which includes introducing granular insulation material into the void.

16. A process according to Claim 15, in which the granules are carried into the void by a stream of air.

17. Cladding material substantially as described with reference to the drawings.

18. A roof structure substantially as described with reference to the drawings.

19. A process for the treatment of rooves which is substantially as described with reference to the drawings.

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Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

9202407.4

Relevant Technical fields

(i) UK Cl (Edition K) B2E (EM); B5N

(ii) Int Cl (Edition 5) B32B; D06N

Databases (see over)

(i) UK Patent Office

(ii)

Search Examiner

Date of Search

Documents considered relevant following a search in respect of claims

1-10

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB A 2146270 (TAJIMA ROOFING) See Figure and page 3 lines 70-79	1-10
X	GB 1543472 (GAF CORPORATION) See Claim 1	1-10
X	GB 1519045 (DYNAMIT NOBEL) Whole document	1-10
X	GB 1511292 (STAUFFER CHEMICAL) Whole document	1-10
X	GB 1473579 (TORAY) See Claim 1 and page 2 column 87	1-10
X	GB 1228592 (PERMANITE) See Claim 1	1-10
X	GB 0731914 (OTTO PALM) See Claim 1	1-10

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).